

Claims:

1. Apparatus for measuring the geometry and surface evenness of metal strip by producing a pattern on the surface to be measured, using a light source and a camera, **characterized in that** the pattern is produced on the surface 4 to be measured by projection with the aid of a transparency, 51, 52.
2. Apparatus according to Claim 1, **characterized in that** a changeable pattern is produced.
3. Apparatus according to Claim 2, **characterized in that** the pattern is produced with the aid of a liquid-crystal device 51, 52.
4. Apparatus according to one of the preceding claims, **characterized in that** the projector illumination 23, 53 is regulated via the evaluation of the grey shades determined by the camera 22, in order to achieve a suitable control of the camera 22.
5. Apparatus according to one of the preceding claims, **characterized in that** the exposure time and/or aperture of the camera 22 is regulated via the evaluation of the grey shades of the surface image determined by the camera 22, in order to achieve a suitable control of the camera 22.
6. Apparatus according to one of the preceding claims, **characterized in that** a camera 22 with non-linear sensitivity is used.
7. Apparatus according to one of Claims 1 to 6, **characterized in that** projector 23, 53 and camera 22 span with the measurement points an angle which is less than 90° , and/or are arranged on the same

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side laterally next to the object 4 to be measured.

- 5 8. Apparatus according to one of Claims 1 to 6, **characterized in that** projector (23,1/53) and camera 22 are arranged next to one another or above one another above the object 4 to be measured.
- 10 9. Method for measuring the strip geometry using an apparatus according to one of the preceding claims, **characterized in that** elastic form changes are filtered using the initially detected peaks and the peaks are separated according to different frequencies and wavelengths on account of strip movements.
- 15 10. Method for measuring the geometry of the strip edge using an apparatus according to one of the preceding claims, **characterized by** the use of the edge boundary of the strip.
- 20 11. Method according to Claim 11, **characterized in that** the strip width or cut length is determined from the edge boundary.
- 25 12. Method for measuring the strip geometry, **characterized by** computational generation of a reference plane and of a reference phase image from the geometry of the known measuring device elements.
- 30 13. Use of an apparatus for measuring the geometry and surface evenness of flat products by producing a pattern on the surface to be measured, using a light source and a camera, in which the pattern is produced on the surface 4 to be measured by projection with the aid of a transparency, 51, 52,
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for the purpose of measuring the surface of metal strip.

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